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Fauna of Bats from the Pliocene of Węże in Poland

Fauna nietoperzy z pliocenu Węzów w Polsce

Фауна летучих мышей плиоцена Венжов в Польше

Abstract. The author describes the Chiropteran fossil remains collected in the Pliocene bone breccia at Węże in Poland. Eight species found at this locality are: *Rhinolophus delphinensis* Gaillard, *R. grivensis* (Depéret), *Plecotus crassidens* Kormos, *Myotis podlesicensis* Kowalski, *M.* cf. *aemulus* Heller, *M.* cf. *exilis* Heller, and *M. helleri* nom. nov. The author substitutes the new name, *Myotis helleri* nom. nov. for *M. insignis* Heller 1936, which is homonymous with *Myotis insignis* (v. Meyer 1845).

INTRODUCTION

The abundant Pliocene vertebrate fauna from Węże near Działoszyn was discussed in a series of publications, which have been listed in three works, recently issued, dealing with this locality (T. Czyżewska, 1960; K. Kowalski, 1960; A. Sulimski, 1960). In the Pliocene, animal remains accumulated probably in a cave with an opening in the vault, which was a trap for both big and small land animals. In addition, a part of the fossil remains was probably derived from owls' pellets. Under such circumstances the remains of flying animals, birds and bats, are rare in the breccia. The origin of the bat bones from owls' pellets is evidenced by the state, in which they are preserved, i. e. by the lack of long bones, fragmentary state of skulls and numerical adventage of mandibles over the other remains. It is also proved by the scarceness of species found in the breccia and the species are rather those of badly flying bats, which were thus more liable to fall victims to owls. The character of the collection of bat remains from Węże resembles the Miocene material of this

mammalian group from Nova Ves (Neudorf; H. Zapfe, 1950). On the other hand, it is quite different, so far as the appearance of the remains is concerned, from the Pliocene bat breccia at Podlesice in Poland (K. Kowalski, 1956), in which the bat remains accumulated underneath a winter colony of bats inside the cave.

The composition of the Chiropteran fauna from Węże is as follows:

Rhinolophidae

Rhinolophus delphinensis Gaillard
Rhinolophus grivensis (Depéret)

Vespertilionidae

Plecotus crassidens Kormos
Myotis podlesicensis Kowalski
Myotis danutae Kowalski
Myotis cf. *aemulus* Heller
Myotis cf. *exilis* Heller
Myotis helleri nom. nov.

Bats, being conspicuously conservative in their evolution and as yet poorly known in their fossil state, do not make good material for considerations on the age of the fauna, which on the basis of other animal groups is supposed to belong to the Middle or the Upper Pliocene.

Rhinolophus delphinensis Gaillard and *R. grivensis* (Depéret) were so far known from the Vindobonian of La Grive St.-Alban and the Helvetian of Nova Ves (Neudorf). As results from an analysis of the older descriptions, carried out in this work, the remains of the Rhinolophids from the Pliocene of Gundersheim and Podlesice and perhaps those from other localities of the same age should be assigned to these species.

Plecotus crassidens Kormos has been known from the „preglacial" fauna of Episcopia (Püspökfürdö) in Rumania as well as from the Pliocene of Podlesice.

Myotis podlesicensis Kowalski and *M. danutae* Kowalski have been described from the Pliocene bat breccia of Podlesice in Poland and have not been found elsewhere up to now.

Myotis cf. *aemulus* and *M.* cf. *exilis* Heller are identical with the species known from Podlesice and most probably identical with the forms described for the first time from Gundersheim in Germany (F. Heller, 1936). H. de Balsac (1940) records *M. exilis* Heller from the north of France, from a faunal assemblage of an age not exactly determined.

Myotis helleri nom. nov. occurs in the Pliocene of Gundersheim. It is characteristic that this species has not been found in the very abundant, thousands of individuals numbering fauna of bats from the Pliocene of Podlesice.

The bat fauna of Węże shows close analogies with two other Pliocene faunas of small mammals of Central Europe, i. e. with those of Podlesice in Poland and Gundersheim in Germany. All the species found at Węże occur at Podlesice except for *Myotis helleri* nom. nov. Two species of bats recorded from Podlesice are lacking at Węże: *Miniopterus schreibersi* (KUHL) and *Myotis dasycneme subtilis* KOWALSKI. Both these species were rare at Podlesice, so their absence from the rather poor material of Węże may be accidental.

The fauna from Gundersheim described by F. Heller (1936) exhibits also a very close similarity to that from Węże. I have had no opportunity to get acquainted with the material from this locality personally, which renders comparison difficult. It seems, however, that the specific composition of the bats of the genus *Myotis* KAUP was at Gundersheim richer and different than at Węże.

A comparison with the Miocene faunas shows some close analogies as well. The same species of the *Rhinolophidae* occur in the fauna of Nova Ves (H. ZAPFE, 1950, 1952) and at Węże. However, there are no representatives of the genus *Myotis* KAUP here, and *Paraphyllophora lugdunensis* (DEPÉRET), *Pareptesicus priscus* ZAPFE and *Miniopterus fossilis* ZAPFE appear instead of them. Further, horse-shoe bats are present at La Grive St.-Alban, just as they are at Węże, and in addition to them there are two species of the genus *Myotis* KAUP: *M. antiquus* GAILLARD and *M. sanctialbani* VIRET. They are preserved in such fragments that their position within the genus *Myotis* KAUP and relationship to the species described from the Pliocene cannot be definitely established.

It must be stated in general that the bat fauna of Węże corroborates the Pliocene age of this locality and is probably simultaneous with the faunas of Gundersheim and Podlesice. Besides, it should be stressed here that in spite of what I wrote in my previous study (K. KOWALSKI 1956), the fauna of Podlesice did not originate from the oldest interglacial but from the Pliocene, and was of nearly the same age as the fauna at Węże. The Chiropteran fauna of Węże, like, for instance, the reptilian fauna of the same locality, shows that some Miocene forms were still living at that time.

Among the bats collected from Węże there are no silvan species. All the forms known from this locality represent, above all, the species living in rocky areas and taking shelter in caves and crevices. No too far-reaching conclusions should be drawn from this fact as to the vegetation of that period; the species so far known are certainly only small part of the bat fauna of that time.

The bat fauna gives a poor evidence of the palaeoclimatic conditions as well. The species of the *Rhinolophidae* collected, and particularly *Rhinolophus delphinensis* GAILLARD, have a similarity to modern tropical species of this genus. This fact may mean no more than the preservation of more primitive forms in tropical regions, which have been replaced by more advanced evolutionary forms in Europe. The bat fauna, on the whole, suggests a climate a little milder than the present one, resembling perhaps that of the Mediterranean.

Family Rhinolophidae Bell 1836

Genus *Rhinolophus* Lacépède 1799

Rhinolophus delphinensis Gaillard 1899

1892. *Rhinolophus lugdunensis* n. sp. (partim); Ch. Depéret, La faune..., Pl. II, Fig. 6.
1899. *Rhinolophus delphinensis* nov. sp.; C. Gaillard, Mammifères..., 11—13, Figs. 5, 6 A.
1922. *Rhinolophus delphinensis* Gaillard; P. Revilliod, Contribution..., 175.
1936. *Rhinolophus* aff. *ferrum equinum* Schreb.; F. Heller, Eine oberpliozäne..., 110.
1950. *Rhinolophus delphinensis* Gaillard; H. Zapfe, Die Fauna..., 53—54, Figs. 1—3, 6 A.
1951. *Rhinolophus delphinensis* Gaillard; J. Viret, Catalogue..., 20—21, Figs. 5—6.
1956. *Rhinolophus* cf. *ferrumequinum* (Schreber); K. Kowalski, Insectivores..., 356—358, Plate II, Figs. 5, 6.
1958. *Rhinolophus* cf. *ferrumequinum* (Schreber); K. Kowalski, An early..., 15.

Material: 25 mandibles or their fragments, 4 fragments of maxillae, 8 separate teeth. The material covers the whole dentition except for upper incisors. The fragments preserved represent at least 10 individuals.

Description. The build resembles that of *Rhinolophus ferrumequinum* (Schreber). Out of the 11 mandibles in which P_3 or its alveolus is preserved, in one it is standing in the tooth row, in 9 it protrudes outwards from the row to a variable degree and in one it is missing. P^2 could be examined in two specimens. It is small, but lies in the tooth row. There is no interspace between P^2 and P^4, but C and P^4 are not in contact with each other.

Dimensions. The dimensions of the mandibles in my collection are as follows (in mm.):

Ser. No of mandible	1	2	3	4	5	6	7
Length of tooth row	±10.3	—	—	—	—	—	—
P_4—M_1 length	7.7	7.6	7.7	—	—	—	—
M_1—M_3 length	6.2	6.4	6.5	—	—	—	—
M_1 length	2.1	2.2	2.4	2.4	2.2	2.3	2.3
M_1 width	1.5	1.6	1.5	1.6	1.4	1.6	1.3
M_1 height	2.3	2.3	—	2.0	1.9	—	1.9
Inside height of mandibular body measured under M_1	2.1	2.1	2.2	2.2	2.1	2.2	2.0

Dimensions of maxilla fragments (in mm.):

Ser. No of maxilla	1	2	3
C—M^2 length	7.0	—	—
P^4—M^2 length	5.2	5.3	5.0
P^4—M^3 length	—	6.7	—
M^1—M^3 length	—	5.4	—
M^1—M^2 length	4.0	4.1	3.9
M^1 length	2.1	2.1	1.9

Systematic position. So far as the morphology and dimensions are concerned, the specimens described above correspond with those of *Rhinolophus*

delphinensis GAILLARD from La Grive St.-Alban and Nova Ves (Neudorf). According to J. VIRET only two features from among those given by C. GAILLARD (1899) as characteristic of this species are essential: the reduction stage of premolars and the dimensions. The dimensions are somewhat larger in the specimens from Węże than in the Miocene specimens, but the difference may be casual.

Rh. delphinensis GAILLARD comes near Recent *Rh. ferrumequinum* (SCHREBER) and it certainly belongs in the same group within the genus *Rhinolophus* LACÉPÈDE. It differs from the Recent form in smaller dimensions and lower degree of reduction of the premolars. According to K. ANDERSON (1905) in 3 *Rh. f. ferrumequinum* (SCHERBER) of the 11 specimens examined P_3 was lacking, and in the remaining ones it was protruded from the tooth row.

The Recent species of the genus *Rhinolophus* LACÉPÈDE, worked out by K. ANDERSON (1905, 1918) and then by G. H. H. TATE and R. ARCHBOLD (1939), show a very various degree of reduction of the premolars within the range of the group *Rhinolophus ferrumequinum* (SCHREBER), and besides, this degree of reduction changes greatly from individual to individual within the species. *Rh. delphinensis* GAILLARD displays a degree of tooth reduction similar to that in *Rh. affinis* (HORSF.) now living in south Asia, reaching on the north as far as the Himalaya. The fossil species may even be identical with the Recent form.

„*Rh.* aff. *ferrum equinum* SCHREB.“ described by F. HELLER (1936) from Gundersheim has dimensions corresponding to those in *Rh. delphinensis* GAILLARD and smaller than the dimensions of the modern European species. In view of the Pliocene age of the locality it is most probably the same form as lived in the Pliocene of Węże.

Numerous specimens from Podlesice described by me (K. KOWALSKI, 1956) as *Rh.* cf. *ferrumequinum* (SCHREBER) also belong to *Rh. delphinensis* GAILLARD. In 47 specimens out of the 57 ones examined from this locality P_3 sticks out of the tooth row, in 7 it lies in the tooth row and in 3 it is absent. However, in 2 specimens of the last group there is a conspicuous interspace between P_2 and P_4. Of the 58 maxillae examined, in 57 specimens P^2 is present and lies in the tooth row, in 1 it is lacking, but a distinct space is to be seen between C and P^4.

The material from Kadzielnia in Kielce, originating from the oldest interglacial (K. KOWALSKI, 1958), is very fragmentary. The presence of P^2 in all the 3 specimens that could be examined for this characteristic and the small dimensions suggest that the specimens belong to *Rh. delphinensis* GAILLARD.

„*Rhinolophus ferrumequinum* (SCHREBER)“ has been recorded from a number of Pliocene and Lower Pleistocene localities in Europe such as Wojcieszów (F. HELLER, 1937), Beremend 4, Villany 3 and 5 (M. KRETZOI, 1956), Podumci (K. KOWALSKI, 1958 a) and Episcopia (F. HELLER, 1936), but the fragmentary character of the material or the lack of descriptions and measurements in the publications render it impossible to identify the material definitely. On this occasion I wish to mention that a printing error has crept into the description

of the remains from Podumci published by me (1958 a). The length and width of M^1 are 2.0 and 2.5 mm. respectively and not — as has been printed — 1.0 and 1.5 mm.

M. KRETZOI (1951) describes *Rhinolophus csakvarensis* KRETZOI from the Hipparion fauna of Csakvar in Hungary. The description is very short, no drawings present. Perhaps it is another specimen of *Rh. delphinensis* GAILLARD, though M. KRETZOI writes that in his species M_3 is finer and the mandible more elongated.

I wish to express here my thanks due to Dr. G. TOPAL from Budapest, who was the first to turn my attention to the differences between the specimens from Podlesice and Recent *Rh. ferrumequinum* (SCHREBER).

Rhinolophus grivensis (DEPÉRET **1892**)

1892. *Vespertilio (Plecotus) Grivensis* n. sp.; Ch. DEPÉRET, La faune..., 11, Plate II, 2—3.
1899. *Vespertilio* (?) *grivensis* DEPÉRET; C. GAILLARD, Mammifères..., 7—8, Fig. 2.
1922. *Myotis grivensis* (DEP.); P. REVILLIOD, Contribution..., 172.
?1936. *Rhinolophus* sp. (*hipposideros-Gruppe*); F. HELLER, Eine oberpliozäne..., 111.
1950. *Rhinolophus similis* nov. sp.; H. ZAPFE, Die Fauna..., 55—57, Figs. 4—5, 6 D.
1951. *Rhinolophus grivensis* (DEPÉRET); J. VIRET, Catalogue..., 21—22, Fig. 7.
1952. *Rhinolophus grivensis* (DEP.); H. ZAPFE, *Rhinolophus*..., 1—2.

Material: 7 fragments of mandibles belonging to at least 4 individuals. One of the fragments with P_4—M_3, one with C and P_4—M_1, one with P_4—M_1 and one toothless.

Description. P_3 is preserved in one mandible, its alveolus being visible in the others. This tooth is pretty large, lying in the tooth row or only slightly projecting outwards. The presence of 2 incisors and 3 premolars in the mandible as well as the strong flexion of the frontal portion of the mandible toward the body axis distinctly indicate the pertinence of the specimens to the genus *Rhinolophus* LACÉPÈDE.

Dimensions of mandibular fragments preserved (in mm.):

Ser. No of mandible		1	2	3	4
P_3—M_3 length		4.5	—	—	—
M_1—M_3 length		3.9	—	—	—
P_4—M_1 length		2.0	2.0	2.2	2.1
M_1	length	1.5	1.3	1.3	1.5
	width	0.8	0.9	0.9	0.9
	height	1.2	1.0	1.0	1.1
Inside height of mandibular body measured under M_1		1.0	1.0	1.2	1.1

Systematic position. On the basis of the remains from Węże it can be stated that we deal with representatives of the genus *Rhinolophus* LACÉPÈDE of the size of *R. hipposideros* BECHSTEIN. Closer identification is possible partly owing to the fact that numerous fossil remains of the same form, yet unpublished, have been found in the rich material from Podlesice. These are, among others,

10 almost complete mandibular halves and one facial part of the skull. In all the 10 mandibles P_3 is large, situated in the tooth row or slightly pushed out of it. P^2 is small but well-developed, lying in the tooth row.

The specimens from Podlesice show conformity of the morphological characteristics and dimensions with those of *Rhinolophus grivensis* (DEPÉRET) hitherto known from the Miocene of France and Czechoslovakia. The Pliocene remains from Gundersheim described by F. HELLER (1936) as „*Rhinolophus* sp. *(hipposideros*-Gruppe*)*“ probably belong to the same species. *Rhinolophus grivensis* (DEPÉRET) is characterized by a weak reduction of P_3 as compared to the Recent form of *Rh. hipposideros* BECHSTEIN, to which it comes close. The fossil form is distinguished by somewhat larger dimensions as well.

The centre of evolution of most horse-shoe bats is south-east Asia, where their species are most numerous and where the most primitive forms occur. Many Recent primitive forms are not differentiated from the European fossil species of the Upper Tertiary by any osteological characters. The great variability, the parallel evolution of dentition in different groups and the systematics based on exterior characters do not allow us to establish closer ties between the fossil forms so far known only from Europe and the Recent Asiatic forms.

Family Vespertilionidae GRAY 1821

Subfamily Vespertilioninae MILLER 1879
Genus *Plecotus* GEOFFROY 1812

Plecotus crassidens KORMOS 1930

1930. *Plecotus crassidens* n. sp.; KORMOS T., Diagnosen..., 238.
1956. *Plecotus crassidens* KORMOS; K. KOWALSKI, Insectivores..., 359—362, Plate III, Figs. 1, 2.
1959. *Plecotus crassidens* KORMOS; C. O. HANDLEY, A revision..., 208—209.

Material: 3 fragments of mandibles without processes, representing at least 2 individuals; one with C—M_2, the second with P_3—M_1 and the third with P_4.

Description. The canine pretty large, distinctly curved backwards, with strong cingulum. P_2 twice as large as P_3, cingulum of P_2 overlapping P_3. Interspace in tooth row between P_3 and P_4. P_4 subsquare, with strong cingulum somewhat lower than molars. Molars large, with strong cingulum.

Dimensions. In the best preserved fragment C—M_2 is 4.8 mm. long, P_2—M_2 3.1 mm., P_4—M_1 2.1 mm and M_1 is 1.1 mm. long and 0.9 mm. wide. The inside height of the mandibular body, measured under M_1 amounts to 1.1 mm.

Systematic position. The shape of P_4 and its small height, as well as other morphological characteristics point out the pertinence of the specimens to the genus *Plecotus* GEOFFROY. The specimens from Węże are identical with those from Podlesice, which I managed to identify as *Plecotus crassidens* KOR-

mos. Ch. O. Handley (1959) has recently discussed the systematic position of this species, confirming its pertinence to the subgenus *Corynorhinus* Allen with the presence of some characters of the subgenus *Plecotus* Geoffroy.

Genus *Myotis* Kaup 1829

Myotis podlesicensis Kowalski 1956

1956. *Myotis podlesicensis* n. sp.; K. Kowalski, Insectivores..., 362—367, Plate II, Figs. 7, 8.

Material: 20 fragmentary halves of mandibles belonging to at least 12 individuals. All teeth represented except for I_1.

Description. Coronoid process rather low, with rounded top. Mental foramen beneath commissure between canine and P_2 or beneath P_2. I_2 with three main tubercles and 1 lower, accessory tubercle formed on lingual side of cingulum. I_3 with 4 main tubercles and 2 lower, accessory ones on lingual side of cingulum. Incisors present only in one specimen. Canine small. Two frontal premolars arranged more or less loosely in tooth row. P_3 smaller, sometimes rather considerably, than P_2. P_4 slightly elongated, 1.0—1.1 mm. long and 0.7—0.9 mm. wide.

Dimensions of specimens better preserved (in mm.):

Ser. No of mandible		1	2	3	4	5	6	7	8	9
$C—M_3$ length		—	8.1	—	—	—	—	—	—	—
$P_4—M_3$ length		6.0	5.8	5.7	—	—	—	—	—	—
$M_1—M_3$ length		5.0	4.7	—	—	4.6	—	—	—	—
M_1	length	1.7	—	—	1.9	1.7	1.7	1.6	1.6	1.7
	width	1.2	—	—	1.2	1.1	1.1	1.1	1.0	1.1
Inside height of mandibular body measured under M_1		2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0

Systematic position. With the exception of the above described remains of the genera *Rhinolophus* Lacépède and *Plecotus* Geoffroy, the whole of the Chiropteran material collected at Węże belongs to the genus *Myotis* Kaup. 163 fragments of mandibles and 31 fragments of skulls could not be specifically identified for certain. The other remains represent 5 species, which can be distinguished on the basis of the differences in size and the various shapes of P_4.

The largest species in the material from Węże is the species identical, in respect of its size and morphology, with the form described from the Pliocene of Podlesice as *Myotis podlesicensis* Kowalski. This species has not been described hitherto from any locality besides that of its first finding.

Myotis cf. *aemulus* Heller 1936

Material: 26 fragments of mandibles without processes belonging to at least 13 individuals. All the teeth except for I_1 are represented jointly by the material.

Description. Incisors in both specimens in which they are preserved are strongly rubbed down so that it is impossible to recognize exactly the build of their surfaces. I_2 elongated, with one row of tubercles; I_3 at least twice as broad as I_2. Large mental foramen situated below commissure of C and P_2. Canine small, with strong cingulum. P_2 and somewhat smaller P_3 loosely arranged in tooth row. P_4 rectangular, 0.9—1.1 mm. long by 0.7—0.8 mm. wide.

Dimensions of specimens better preserved (in mm.):

Ser. No of mandible	1	2	3	4	5	6	7	8	9	10
$C—M_3$ length	7.6	—	—	—	—	—	—	—	—	—
$P_4—M_3$ length	5.2	5.1	5.4	5.5	—	—	—	—	—	—
$M_1—M_3$ length	4.3	4.2	4.4	4.4	4.3	4.2	4.1	4.3	—	—
M_1 length	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5
M_1 width	1.1	0.9	1.0	1.1	1.1	0.9	0.9	1.0	0.9	1.1
Inside height of mandibular body measured under M_1	1.9	1.8	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.8

Systematic position. The dimensions and morphology of the specimens from Węże are identical with the corresponding characteristics of the species from Podlesice described as *Myotis* cf. *aemulus* Heller. As I have written previously (K. Kowalski, 1956) this form is probably identical with the species described from Gundersheim as *Myotis aemulus* Heller.

Myotis danutae Kowalski 1956

1956. *Myotis danutae* n. sp.; K. Kowalski, Insectivores..., 372—374, Plate IV, Figs. 1, 2.

Material: 4 fragments of mandibles representing 4 individuals: one with $P_4—M_3$, another with $P_4—M_2$ and two others with C, P_2 and P_4 or with P_4 respectively.

Description. Mental foramen located between C and P_2. Canine small, slender. P_2 and P_3, judging by alveoli, almost the same size, arranged loosely in tooth row. Last premolar strongly elongated, 0.8 mm. long and 0.5 mm. wide.

Dimensions of mandibular fragments better preserved (in mm.):

Ser. No of mandible	1	2
$P_4—M_3$ length	4.4	—
$M_1—M_3$ length	3.6	—
M_1 length	1.3	1.3
M_1 width	0.8	0.8
Inside height of mandibular body measured under M_1	1.8	1.6

Systematic position. The remains described above are identical with those found in the Pliocene of Podlesice and described as *Myotis danutae* Kowalski.

The shape of the crown of P_4 is here especially characteristic, elongated like in *M. helleri* nom. nov., which, however, has a considerably smaller mandibular body.

Myotis cf. *exilis* HELLER 1936

Material: 46 fragments of mandibles representing at least 21 individuals. The material makes it possible to know the build of the processes and the whole dentition of the mandible.

Description. Coronoid process pointed at top, not very high. Mental foramen between canine and P_2. P_3 markedly smaller than P_2, both standing in tooth row but overlapping each other. P_4 subsquare, widened backwards. It is 0.7 mm. long and 0.6 mm. wide.

Dimensions of mandibular fragments better preserved (in mm.):

Ser. No of mandible		1	2	3	4	5	6	7	8	9	10
$C—M_3$ length		5.5	—	—	—	—	—	—	—	—	—
$P_4—M_3$ length		4.0	4.2	4.4	4.3	—	—	—	—	—	—
$M_1—M_3$ length		3.3	3.5	3.6	3.5	3.5	3.7	3.5	3.5	3.5	3.5
M_1	length	1.1	1.3	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.3
	width	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.8
Inside height of mandibular body measured under M_1		1.5	1.6	1.4	1.5	1.5	1.5	1.3	1.5	1.4	1.5

Systematic position. The morphological characters and dimensions of the remains from Węże strictly correspond to those of the specimens from the Pliocene of Podlesice identified as *Myotis* cf. *exilis* HELLER. As I have written previously (K. KOWALSKI, 1956), they are most probably identical with *Myotis exilis* HELLER from Gundersheim.

Myotis helleri nom. nov.

1936. *Myotis insignis* n. sp.; F. HELLER, Eine oberpliozäne..., 121—122, Plate IX, Fig. 3.

Material: 4 fragments of mandibles belonging to 4 specimens. The teeth represented are C and $P_4—M_2$. The ramus of mandible is lacking.

Description. Mental foramen situated between C and P_2. Canine hardly curved backwards, its cingulum distinct. The alveoli show that P_2 and P_3 were almost the same size, large. P_4 rectangular, strongly elongated.

Dimensions. P_4 0.7—0.8 mm. long and 0.4—0.5 mm. wide. M_1 (the only specimen) 1.3 mm. long and 0.8 mm. wide. Height of mandibular body amounts to about 1.2 mm.

Systematic position. The remains described above are distinguished from the other remains of the genus *Myotis* KAUP in the Pliocene of Węże by such characters as the elongated shape of P_4, fine build of mandibular body and comparatively large size of P_2 and P_3. This form has no corresponding one in the rich material from the Pliocene of Podlesice. Instead, it seems identical with the species described by F. HELLER (1936) from Gundersheim as „*Myotis*

insignis n. sp.". The dimensions of P_4 in the holotype of this species are: length — 0.6 mm., width — 0.4 mm., mandibular body height — 1.3 mm. Besides Gundersheim, this species was not found elsewhere so far.

The name given by F. HELLER is homonymous with *Myotis insignis* (v. MEYER 1845), quoted by P. REVILLIOD (1922), and so I suggest its being replaced by *Myotis helleri* nom. nov.

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STRESZCZENIE

W bogatej plioceńskiej brekcji kostnej w Wężach koło Działoszyna znaleziono nieliczne tylko szczątki nietoperzy. Nagromadzenie szczątków zwierzęcych w Wężach nastąpiło prawdopodobnie w jaskini o kształcie studni, do której wpadały zwierzęta lądowe. W tych warunkach zwierzęta latające, jak ptaki i nietoperze, nie mogły się znaleźć liczniej w materiale z brekcji. Szczątki nietoperzy pochodzą prawdopodobnie ze zrzutek sów, które również wchodzą w skład szczątków zwierzęcych z Wężów. Skład fauny nietoperzy z Wężów przedstawia się następująco:

Rhinolophidae

Rhinolophus delphinensis GAILLARD
Rhinolophus grivensis (DEPÉRET)

Vespertilionidae

Plecotus crassidens KORMOS
Myotis podlesicensis KOWALSKI
Myotis cf. *aemulus* HELLER
Myotis danutae KOWALSKI
Myotis cf. *exilis* HELLER
Mytis helleri nom. nov.

Dwa z gatunków występujących w Wężach, a mianowicie oba podkowce, znane są z faun mioceńskich: z Nowej Wsi (Nova Ves, Neudorf) w Czechosłowacji i z Grive St. Alban we Francji; równocześnie występują one w faunach plioceńskich. Pozostałe gatunki znane są z faun plioceńskich z Gundersheim i Podlesic.

Wiek fauny nietoperzy z Wężów jest plioceński, fauna ta wskazuje na klimat cieplejszy nieco od współczesnego, być może typu śródziemnomorskiego. Wszystkie spotykane tu gatunki należą do form nietoperzy związanych z terenami skalistymi.

Autor opisuje znalezione szczątki nietoperzy, podaje ich wymiary i omawia stanowisko systematyczne. Dla gatunku opisanego przez F. HELLERA (1936) jako *Myotis insignis* proponuje nową nazwę *Myotis helleri* nom. nov., gdyż poprzednio nadana jest homonimem *Myotis insignis* (v. MEYER 1845) wymienionego przez P. REVILLIOD (1922).

РЕЗЮМЕ

В обильной бпекчии плиоцена местности Венже вблизи Дзялошина найдены немногочисленные останки летучух мышей. Нагромождение звериных останков последовало, по всей вероятности, в пещере похожей на колодец, где впадали земные животные. В этих условиях летающие животные, как птицы и летучие мыши, не могли в больших количествах находиться в веществе брекчии. Останки летучих мышей происходят вероятно из совиных погадок, из которых происходит часть звериных останков в местности Венже. Состав фауны летучих мышей следующий:

Rhinolophidae

Rhinolophus delphinensis GAILLARD
Rhinolopus grivensis (DEPÉRET)

Vespertilionidae

Plecotus crassidens KORMOS
Myotis podlesicensis KOWALSKI
Myotis cf. *aemulus* HELLER
Myotis danutae KOWALSKI
Myotis cf. *exilis* HELLER
Myotis helleri nom. nov.

Два из выступаяющих в местности Венже видов, а именно оба подковоносы известны в миоценовых фаунах Нова Весь (Nova Ves, Neudorf) в Чехословакии и Grive St. Alban во Франции. Они выступают тоже в плиоценовой фауне. Остальные виды известны из плиоценовых фаун из Гундерсгейм (Gundersheim) и Подлесице (Podlesice).

Возраст фауны местности Венже — плиоценовый, фауна эта указывает на более теплый чем современный климат, быть может средиземноморский. Все найденные здесь виды принадлежат к формам летучих мышей живущих в скалистых местностях.

Автор описывает найденные останки летучих мышей, подает их размеры и обсуждает их место в систематике. Он предлагает для описанного ф. Геллером (F. HELLER 1936) рода *Myotis insignis* новое наименование *Myotis helleri* nom. nov., так как это первое наименование представляет омоним *Myotis insignis* (v. MEYER 1845), приведенный П. Ревиллиодом (P. REVILLIOD 1922).

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